REMARKS

Claims 1-42 were examined and reported in the Office Action. Claims 1-42 are rejected. Claims 1, 9, 13-14, 20, 24, 26, 32-33, 37, 40 and 42 are amended. Claims 1-42 remain.

Applicant requests reconsideration of the application in view of the following remarks.

I. 35 U.S.C. § 103(a)

A. It is asserted in the Office Action that claims 14-16, 19-23, 25-28, 32-35 and 37-42 are rejected in the Office Action under 35 U.S.C. § 103(a), as being unpatentable over U.S. Patent No. 6,138,092, issued to Zinser Jr. et al. ("Zinser") in view of U.S. Patent No. 5,617,507, issued to Lee et al. ("Lee"), and further in view of well known prior art. Applicant respectfully disagrees.

Applicant's amended claim 14 contains the limitations of "encode the plurality of signals in a compressed format; and transmit the plurality of signals in a compressed format through a transmission medium at variable frame rates based on a plurality of prioritized epoch parameters and by combining epochs, by correcting presumed errors in successive epoch lengths, and by extending epoch length patterns indicative of voiced speech areas into unvoiced speech areas, to dynamically reduce signal bandwidth while preserving perceptual quality of the signals, wherein said prioritized epoch parameters are reduced based on each of said plurality of epoch data parameters respective priority."

Applicant's amended claim 20 contains the limitations of "... receive the plurality of signals in a compressed format through a transmission medium at variable frame rates based on a plurality of prioritized epoch parameters to reduce signal bandwidth and by combining epochs, by correcting presumed errors in successive epoch lengths, and by extending epoch length patterns indicative of voiced speech areas into unvoiced speech areas, while preserving perceptual quality of the signals; decode the plurality of compressed signals; and transmit the decoded signals to a first receiving device,

wherein said prioritized epoch parameters are reduced based on each of said plurality of epoch data parameters respective priority."

Applicant's amended claim 26 contains the limitations of "...encoding the plurality of signals in a compressed format; and transmitting the plurality of signals in a compressed format through a transmission medium at variable frame rates based on a plurality of prioritized epoch parameters and by combining epochs, by correcting presumed errors in successive epoch lengths, and by extending epoch length patterns indicative of voiced speech areas into unvoiced speech areas, to reduce signal bandwidth while preserving perceptual quality of the signals, wherein said prioritized epoch parameters are reduced based on each of said plurality of epoch data parameters respective priority."

Applicant's amended claim 33 contains the limitations of "...receiving a plurality of signals in a compressed format through a transmission medium at variable frame rates based on a plurality of prioritized epoch parameters to reduce signal bandwidth and by combining epochs, by correcting presumed errors in successive epoch lengths, and by extending epoch length patterns indicative of voiced speech areas into unvoiced speech areas, while preserving perceptual quality of the plurality of the signals; decoding the plurality of compressed signals; and transmitting the decoded signals to a receiving device, wherein said prioritized epoch parameters are reduced based on each of said plurality of epoch data parameters respective priority."

Applicant's amended claim 40 contains the limitations of "...means for encoding a plurality of input signals at variable frame rates, the means for encoding including: means for identifying input signal segments; means for extracting a plurality of epoch parameters describing signal segments; means for associating priority values to the plurality of epoch parameters; means for combining epochs; means for correcting presumed errors in successive epoch lengths; and means for extending epoch length patterns indicative of voiced speech areas into unvoiced speech areas."

Applicant's amended claim 42 contains the limitations of "...means for decoding a plurality of compressed signals; the decoding means including: means for

reconstructing parameters from the plurality of compressed signals; means for constructing an excitation signal; means for producing a raw output signal; and means for producing a final output signal, wherein the means for decoding comprises decompressing the plurality of compressed signals at variable frame rates based on a plurality of prioritized epoch parameters and by combining epochs, correcting presumed errors in successive epoch lengths, and by extending epoch length patterns indicative of voiced speech areas into unvoiced speech areas, to dynamically reduce signal bandwidth while preserving perceptual signal quality."

In other words, Applicant's claimed invention relates to Apparatus, methods and processes using a dynamic variable frame rate technique for compressing and decompressing digitized audio signals. Applicant's claimed invention dynamically adjusts the frame rate required for transmission based on a plurality of prioritized epoch parameters (i.e., reducing the epoch parameters based on their respective priorities) and by combining epochs, by correcting presumed errors in successive epoch lengths, and by extending epoch length patterns indicative of voiced speech areas into unvoiced speech areas, to dynamically reduce signal bandwidth while preserving perceptual signal quality.

According to MPEP 2142 "[t]o establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure." (In re Vaeck, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991)).

Zinser discloses a code book technique for tracking and reproducing pitch and voice decisions using an encoder and a decoder subsystem. The invention disclosed by Zinser incorporates a process for dealing with pitch harmonics outside the normal

framing range of linear prediction coding (LPC) voice encoders. It is noted that it is asserted in the Office Action that "Zinser does not specifically teach that the data are transmitted at variable frame rates." (Office Action, page 3, first complete paragraph). It is also asserted that "implementation of variable frame rates in a compression scheme was well known in the art..." (Office Action, *Id.*). The Office Action, however, does not give any specific teachings known in the art as examples of such teachings. Applicant, therefore, traverses the assertion that implementation of variable frame rates in a compression scheme was well known in the art (See MPEP 2144.03). Applicant notes that there is a difference between transmitting data at a variable rate, and transmitting data with variable frame rates. Further, one skilled in the art would know that frame rate, bandwidth rate and data rate all have different meanings in the art. For example, Zinser discloses variable data transmission rates with a constant frame rate. In fact, there are many places in Zinser where fixed frame rate is discussed (See, e.g., Zinser, column 10, lines 52-53; claim 5).

Moreover, Zinser does not teach, disclose or suggest transmission at *variable frame rates based on a plurality of prioritized epoch parameters and by combining epochs, by correcting presumed errors in successive epoch lengths, and by extending epoch length patterns indicative of voiced speech areas into unvoiced speech areas.* In fact, Zinser specifies that epoch parameters are held constant. (See Zinser, column 15, line 55 to column 16, line30).

Lee discloses a method and system for synthesizing speech using a periodic waveform decomposition and relocation coding scheme. The signals are decomposed into wavelets. The wavelets are coded and stored. The wavelets nearest to positions where the wavelets are to be located are selected from the stored wavelets and decoded. The decoded wavelets are then superimposed to each other. Nowhere in Lee is it disclosed, taught or suggested using reducing epoch parameters based on priority. It is asserted in the Office Action that prioritized epoch parameters are reduced based on each of said plurality of epoch data parameters respective priority is well known in the art as evidenced by Lee. Applicant traverses this assertion as speech segment coding and pitch control methods taught by Lee does not select and arrange epoch

parameters based on priority. Lee only selects wavelets, codes and stores the wavelets, selects wavelets and superimposes the wavelets. This is clearly distinguishable from Applicant's claimed invention. Further, Lee does not teach, disclose, or suggest the limitations of "transmit the plurality of signals in a compressed format through a transmission medium at variable frame rates based on a plurality of prioritized epoch parameters and by combining epochs, by correcting presumed errors in successive epoch lengths, and by extending epoch length patterns indicative of voiced speech areas into unvoiced speech areas, to dynamically reduce signal bandwidth while preserving perceptual quality of the signals, wherein said prioritized epoch parameters are reduced based on each of said plurality of epoch data parameters respective priority."

Since neither Zinser, Lee, undisclosed well known prior art, nor the combination of the three, disclose, teach or suggest all the limitations contained in Applicant's amended claims 14, 20, 26, 33, 40 and 42, as listed above, there would not be any motivation to arrive at Applicant's claimed invention. Thus, Applicant's amended claims 14, 20, 26, 33, 40 and 42 are not obvious over Zinser in view of Lee, and further in view of undisclosed well known prior art since a *prima facie* case of obviousness has not been met under MPEP 2142. Additionally, the claims that directly or indirectly depend from Applicant's amended claims 14, 20, 26, 33, and 40, namely claims 15-16 and 19, 21-23 and 25, 27-28 and 32, 34-35 and 37-39, and 41, respectively, are also not obvious over Zinser in view of Lee and further in view of undisclosed prior art for the above same reason.

Accordingly, withdrawal of the 35 U.S.C. § 103(a) rejection for claims 1-13, 17-18, 23, 29-30 and 36 is respectfully requested.

B. It is asserted in the Office Action that claims 1-13, 17-18, 23, 29-30 and 36 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Zinser in view of U.S. Patent No. 5,809,459 issued to Bergstrom et al. ("Bergstrom"), in view of Lee and further in view of well known prior art. Applicant respectfully disagrees.

Applicant's amended claim 1 contains the limitations of "an epoch locator coupled to a frame assembly, a primary epoch analyzer coupled to the epoch locator, and a

secondary epoch analyzer coupled to the primary epoch locator, wherein the encoder compresses a plurality of signals at variable frame rates based on a plurality of prioritized epoch parameters to dynamically reduce signal bandwidth while preserving perceptual signal quality and by combining epochs, by correcting presumed errors in successive epoch lengths, and by extending epoch length patterns indicative of voiced speech areas into unvoiced speech areas, wherein said prioritized epoch parameters are reduced based on each of said plurality of epoch data parameters respective priority."

Applicant's claims 17-18 depend on independent claim 14. Applicant's claim 23 depends on independent claim 20. Applicant's 29-30 depend on independent claim 26. Applicant's claim 36 depends on independent claim 33. Applicant has discussed claims 14, 20, 26 and 33 in regard to Zinser, Lee and undisclosed well known prior art above in section I(A).

It is asserted that "implementation of variable frame rates in a compression scheme was well known in the art..." (Office Action, page 8, second paragraph). The Office Action, however, does not give any specific teachings known in the art as examples of such teachings. Applicant, therefore, traverses the assertion that implementation of variable frame rates in a compression scheme was well known in the art (See MPEP 2144.03).

Bergstrom discloses a method for extracting and tracking pitch using orthogonal error waveforms. Bergstrom, however, does not teach, disclose or suggest "the encoder compresses a plurality of signals at variable frame rates based on a plurality of prioritized epoch parameters to dynamically reduce signal bandwidth while preserving perceptual signal quality and by combining epochs, by correcting presumed errors in successive epoch lengths, and by extending epoch length patterns indicative of voiced speech areas into unvoiced speech areas, wherein said prioritized epoch parameters are reduced based on each of said plurality of epoch data parameters respective priority." Moreover, Bergstrom does not teach, disclose or suggest similar limitations contained in Applicant's amended claims 14, 20, 26 and 33, as listed above.

Zinser does not teach, disclose or suggest "the encoder compresses a plurality of signals at variable frame rates based on a plurality of prioritized epoch parameters to dynamically reduce signal bandwidth while preserving perceptual signal quality and by combining epochs, by correcting presumed errors in successive epoch lengths, and by extending epoch length patterns indicative of voiced speech areas into unvoiced speech areas, wherein said prioritized epoch parameters are reduced based on each of said plurality of epoch data parameters respective priority."

Lee does not teach, disclose, or suggest "the encoder compresses a plurality of signals at variable frame rates based on a plurality of prioritized epoch parameters to dynamically reduce signal bandwidth while preserving perceptual signal quality and by combining epochs, by correcting presumed errors in successive epoch lengths, and by extending epoch length patterns indicative of voiced speech areas into unvoiced speech areas, wherein said prioritized epoch parameters are reduced based on each of said plurality of epoch data parameters respective priority."

Since neither Zinser, Lee, Bergstrom, undisclosed well known prior art, nor the combination of the four, disclose, teach or suggest all the limitations contained in Applicant's amended claims 1, 14, 20, 26 and 33, as listed above, there would not be any motivation to arrive at Applicant's claimed invention. Thus, Applicant's amended claims 1, 14, 20, 26, and 33 are not obvious over Zinser in view Bergstrom, in view of Lee, and further in view of undisclosed well known prior art since a *prima facie* case of obviousness has not been met under MPEP 2142. Additionally, the claims that directly or indirectly depend from Applicant's amended claims 1, 14, 20, 26, and 33, namely claims 2-13, 17-18, 23, 29-30, and 36, respectively, are also not obvious over Zinser in view of Bergstrom, in view of Lee and further in view of undisclosed prior art for the above same reason.

Accordingly, withdrawal of the 35 U.S.C. § 103(a) rejection for claims 1-13, 17-18, 23, 29-30 and 36 is respectfully requested.

CONCLUSION

In view of the foregoing, it is believed that all claims now pending, namely Claims 1-42, patentably define the subject invention over the prior art of record and are in condition for allowance and such action is earnestly solicited at the earliest possible date.

If necessary, the Commissioner is hereby authorized in this, concurrent and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2666 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17, particularly extension of time fees.

Respectfully submitted,
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Jean Svoboda